

TITLE

EXERCISE DEVICE

BACKGROUND OF THE INVENTION

Field of the Invention

5 The present invention relates to an exercise device, and in particular to a compound exercise device provided with treadmill and climbing actions to provide a wide variety of interactive exercise options.

Description of the Related Art

10 Exercise devices of various types are well known and popular. However, exercise is often repetitive and boring, especially when performed indoors. One widely used exercise device is a treadmill, comprising a belt 13 driven by roller shafts 15a and 15b, as shown in Fig. 1. Settings such as speed are input from a panel 100 and a handrail 11 is held while running on the belt 13. Front and back roller shafts 15a, 15b either actively drive the belt 13 as the user 10 runs or walks thereon, or, in passive mode, freely rotate, driven by user tread activity producing friction on belt 13.

15 In Fig. 2, a conventional stair climbing exerciser has a plurality of treads 20, a panel 22 and a body 24. The treads 20 move circularly within the body 24 and electrically connect to the panel 24, such that the speed of the treads 20 can be adjusted by the user through the panel 22.

Even so, these devices provide only a very limited range of exercise experience, and thus, little motivation or interest to the user.

SUMMARY OF THE INVENTION

5 Accordingly, an object of the invention is to provide an exercise device, providing both treadmill and stairclimber functions, providing walking, running, and climbing experiences to make exercise routines fresh and motivating.

10 Another object of the invention is to provide an exercise device, with a display or other simulation apparatus, offering the user a simulated environment for both mental and physical interactivity.

15 The invention has a body, a display, a plurality of treads and risers, a transmission device, an elevating device, a handrail, a controller, a panel and a display. The treads and risers are movable plates pivoting on the transmission device. In a stairclimber configuration, the treads are bracketed by the risers to form a series 20 of steps moved by the transmission device. In treadmill configuration, the treads and the risers rotate to lie on the transmission device to form a consecutive surface thereon.

25 A detailed description is given in the following embodiments with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention can be more fully understood by reading the subsequent detailed description and

examples with reference made to the accompanying drawings, wherein:

Fig. 1 is a schematic view of a conventional treadmill exerciser;

5 Fig. 2 is a schematic view of a conventional stairclimber exerciser;

Fig. 3A is a schematic view of an exercise device (E1) of a first embodiment of the invention, with the exercise device deployed in a stairclimber configuration;

10 Fig. 3B is a schematic view of an exercise device (E1') of a second embodiment of the invention, with the exercise device deployed in a stairclimber configuration;

Fig. 3C is a side view of the exercise device (E1) of Fig. 3A;

15 Fig. 3D is a partially enlarged view of the exercise device (E1) in Fig. 3C;

Fig. 4A is a schematic view of the exercise device (E1) deployed in a treadmill configuration;

20 Fig. 4B is a top view of the exercise device (E1) of Fig. 4A;

Fig. 5 is a flowchart showing operation of the exercise device (E1) according to the first embodiment of the invention;

25 Fig. 6A is a schematic view of an exercise device (E2) of a third embodiment of the invention, with the exercise device (E2) deployed in a stairclimber configuration;

30 Fig. 6B is a flowchart showing operation of the exercise device (E2) according to the third embodiment of the invention;

Fig. 7A is a schematic view of an exercise device (E2') of a fourth embodiment of the invention, with the exercise device (E2') deployed in a stairclimber configuration; and

5 Fig. 7B is a flowchart showing operation of the exercise device (E2') according to the fourth embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring to Fig. 3A, in a first embodiment of the 10 invention, an exercise device E1 with treadmill and stairclimber functions is deployed in a stairclimber orientation.

The exercise device E1 has a body 30b, a display 300, a plurality of treads (31a, 32a, 33a...), a plurality 15 of risers (31b, 32b, 33b...), a plurality of connectors 34, a transmission device 30, two transmission shafts 36a and 36b, an elevating device 35, a handrail 37, a controller 502 and a panel 39.

In Fig. 3C, a side view shows the inner structure of 20 the exercise device E1 in Fig. 3A. The display 300, handrail 37, transmission device 30, and transmission shafts 36a, 36b are disposed on the body 30b. The transmission device 30 is a belt disposed on the transmission shafts 36a, 36b, such that the transmission device 30 rotates thereby.

25 The treads (31a, 32a, 33a...) and the risers (31b, 32b, 33b...) individually pivot on the transmission device 30, and the connectors 34 in this embodiment of the invention are pins. Each tread (31a, 32a, 33a...) and

riser (31b, 32b, 33b...) is symmetrically deployed in pairs on the transmission device 30. For example, a first tread 31a and a first riser 31b are paired and detachably coupled by the connector 34, a second tread 32a and riser 32b are paired and detachably coupled by the connector 34, and a third tread 33a and riser 33b are paired and detachably coupled by the connector 34. That is to say, in a stairclimber orientation in Fig. 3A and 3B, the first riser 31b brackets the first tread 31a, the second riser 32b brackets the second tread 32a, and the third riser 33b brackets the third tread 33a.

The elevating device 35 is a hydraulic device coupled to the body 30b, such that the body 30b can be set at a predetermined position to keep the treads (31a, 32a, 33a...) bracketed by the risers (31b, 32b, 33b...) in a useable horizontal orientation.

The controller 502 disposed in the body 30b is coupled to the transmission device 30 and the elevating device 35, respectively. The panel 39, having a processing unit 500 therein and coupled to the controller 502, is disposed on the handrail 37 at the front of the exercise device E1, enabling input of operational settings such as speed and active or passive mode selection. In passive mode, the user 10 can run at any desired speed, controlling the speed of the transmission device 30 of the exercise device E1. In passive mode, a predetermined speed is set, and followed by the user 10.

When the transmission device 30 rotates around the transmission shafts 36a, 36b, coupled first riser 31b and first tread 31a, second riser 32b and second tread 32a,

and third riser 33b and third tread 33a move together by means of the transmission device 30.

In Fig. 3D, 33a' and 33b' indicate a position of a first deployment (dotted line) of the third tread 33a and the third riser 33b when the exercise device E1 is deployed to treadmill configuration from a stairclimber configuration, and symbol 33a'b' indicates a position of a second deployment (dotted line, the same position as 33a' and 33b') of the third tread 33a and the third riser 33b when the exercise device E1 is deployed to treadmill configuration from a stairclimber configuration.

When the connector 34 is removed, the third tread 33a and the third riser 33b respectively rotate in a clockwise direction and lie on the transmission device 30, i.e., shown by the third tread 33a' and the third riser 33b'.

When the connector 34 is not removed, remaining between the third tread 33a and the third riser 33b but removing a pivot 34' between the third riser 33b and the transmission device 30, the third riser 33b is coupled to the third tread 33a by the connector 34. The third tread 33a and third riser 33b rotate in a clockwise direction and lie on the transmission device 30, as shown by the third tread contacting the third riser 33a'b'.

In Fig. 4A and 4B, the exercise device E1 of the first embodiment of the invention is deployed in the treadmill configuration.

When the connectors 34 are all removed according to the first deployment shown in Fig. 3D, for example, the treads (31a, 32a, 33a...) and the risers (31b, 32b, 33b...)

rotate to lie on the transmission device 30 and form a consecutive surface thereon, and the elevating device 35 is retracted to return the body 30b substantially to a horizontal orientation, enabling treadmill function.

5 Fig. 5 shows the processing unit 500 of the panel 39 coupled to the display 300 and the controller 502 for processing images to appear on the display 300, and controller 502 is coupled to the transmission device 30. Thus, it is easy to switch between stairclimber (Fig. 3A) 10 and treadmill configuration (Fig. 4A) using the panel 39, with speed effectively controlled thereby.

Referring to Fig. 3B, in a second embodiment of the invention, an exercise device E1' is deployed in a stairclimber orientation. Exercise device E1' differs from exercise device E1 in the first embodiment in that a personal display device 700 is provided.

Personal display device 700 allows the display to change with level of activity.

Fig. 6A shows a third embodiment of the invention, 20 in which an exercise device E2 is deployed in a stairclimber orientation.

In the body 30b of the exercise device E2, a plurality of treads 60, a belt 62, a plurality of adjusting mechanism 65, two wheels 66a, 66b and a rail 67 are provided.

The wheels 66a, 66b are respectively disposed on different sides of the body 30b and the belt 62 disposed on the wheels 66a and 66b moved by the wheels 66a, 66b. The rail 67 is disposed on the inner wall of the body 30b. The treads 60 are movably disposed on the belt 62,

each coupled to the belt 62 by the adjusting mechanism 65 guided by the rail 67. The adjusting mechanism 65 supports and adjusts objects to a predetermined angle or position by rotation. Thus, the treads 60 are moved with the belt 62 as the wheels 66a, 66b rotate.

When the elevating device 35 extends the body 30b to a predetermined position or is angled with respect to the horizontal surface, as shown in Fig. 6A, each tread 60 is kept in a horizontal orientation by the corresponding adjusting mechanism 65. The display 300 provides simulated environment.

In Fig. 6B, operation of the exercise device E2 differs from that of the exercise device E1 in that the controller 502 in Fig. 6B is further coupled to the elevating device 35. Thus, it is easy to control the transmission device 30 and the elevating device 35 of the exercise device E2 through the panel 39, and the speed and deployment of the exercise device E2 are effectively controlled.

Referring to Fig. 7A, in a fourth embodiment of the invention, an exercise device E2' with treadmill and stairclimber functions is deployed in a stairclimber orientation.

The exercise device E2' differs from the exercise device E2 in 6A in that a personal display device 700, coupled to the processing unit 500 of the panel 39 and equipped with audio and video devices, is further provided.

In Fig. 7B, the operation of the exercise device E2' differs from that of the exercise device E2 in that the

personal display device 700 is coupled to the processing unit 500 of the panel 39. Input is thus directly transmitted to the processing unit 500 from the personal display device 700, or through the panel 39.

5 While the invention has been described in connection with what is presently considered to be the most practical and preferred embodiment, it is to be understood that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended 10 to accommodate various modifications and equivalent arrangements included within the spirit and scope of the appended claims.